



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,335	08/26/2003	Michiel Lotter	RONI-016/01US (186980-203)	4554
23419	7590	10/26/2004	EXAMINER	
COOLEY GODWARD, LLP 3000 EL CAMINO REAL 5 PALO ALTO SQUARE PALO ALTO, CA 94306			TSE, YOUNG TOI	
			ART UNIT	PAPER NUMBER
			2637	

DATE MAILED: 10/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/649,335

Applicant(s)

LOTTER ET AL.

Examiner

YOUNG T. TSE

Art Unit

2637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-16 and 18 is/are rejected.
- 7) ☒ Claim(s) 10, 17, 19 and 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: the reference sign "428" shown in Figure 6 is not mentioned in the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Information Disclosure Statement***

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate

paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. See page 6, lines 19-22 of the specification.

### ***Specification***

3. The abstract of the disclosure is objected to because the phrases "cancellation" and "data signa" in lines 10 (second occurrence), 11 and 12 should be "interference cancellation" and "data signals.", respectively. Correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informalities:

Page 3, line 24, "conventional a Rake receiver" should be "conventional Rake receiver".

Page 5, line 29, the phrase "is provided" should be deleted.

Page 6, both line 25 and line 28, "106" should be "306".

Page 7, line 4, "each of ... are" should be "each of ... is".

Page 10, lines 2 and 11, "summer 1124" and "11142" should be "a summer 1124" and "1142", respectively.

Page 11, lines 2 and 3, "604" and "608" should be "504" and "506", respectively.

Appropriate correction is required.

### ***Claim Objections***

5. Claims 1-20 are objected to because of the following informalities:

In claim 1, line 11, "cancellation signal" should be "interference cancellation signal".

In claim 3 (lines 2 and 3); claim 4 (line 2); claim 9 (line 10); claim 14 (lines 7, 10, 11, and 13); claim 15 (lines 2-3); and claim 16 (line 3); "cancellation signals" should be "interference cancellation signals".

In claim 8, line 2, "said cleaned data signals" should be "said plurality of interference-reduced data signals" to avoid the lacking of antecedent basis of "said cleaned data signals".

In claim 16, line 1, "claim 14" and "cancellation modules" should be "claim 15" and "interference cancellation modules" to avoid the lacking of antecedent basis of "said N interference-reduced data signals".

In claim 19, line 2, "said data signals", should be "said N data signals".

In claim 19, line 2, "said data signals" should be "said plurality of data signals".

Wherein the dependent claims 2, 5-7, 10-13 and 17-18 are directly or indirectly depended upon the independent claims 1, 9 or 14.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 11 and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Both claims 11 and 18 recite the determination of interference levels in a round robin manner relative to N fingers which is discussed on page 10, lines 28-31 in the specification. However, the specification fails to discuss or define what is the round robin manner?

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 2 and 9-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 2 and 9-20, the letter "N" is undefined.

### ***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1, 3-9 and 12-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Kuo et al. (US2002/0131390 A1).

With respect to claims 1, 3-4, 8-9, 12 and 14-15, Kuo discloses a rake receiver in Figure 3 comprising a plurality of fingers 302 for processing data signals (the output from a pulse reshaping circuit 310) and pilot signals 306 to generate intra-finger interference cancellation signals (the outputs from multipliers 324). Each of the fingers 302 includes a gain adjustment circuit 308 for weighting the intra-finger interference cancellation signals to generate weighted intra-finger interference cancellation signals. The rake receiver also comprises summation circuits 326 to combine ones of the weighted intra-finger interference cancellation signals to generate inter-finger interference cancellation signals and a subtraction circuit 328 to subtract one of the inter-finger interference cancellation signals and one of the data signals to produce interference reduced data signals. As shown in Figure 3, the reduced data signals are divided and synthesized into each of the fingers to generate the intra-finger interference cancellation signals.

With respect to claims 5, 7, 13 and 16, the pilot signals are pilot channel models since each finger receives its own pilot channel codes and each finger generates its own inter-finger interference cancellation signals based on its own pilot channel codes and the reduced data signals.

With respect to claim 6, Although Kuo does not explicitly show or suggest that the pilot channel codes comprise a plurality of primary pilot signals and a plurality of

secondary pilot signals. Kuo teaches that in a downlink WCDMA communication system, each base station comprises primary specific synchronization channels (SCH) transmits a special chip pattern which is the same for all base stations while secondary SCH transmits another special chip pattern which is different based on which group the base station belongs to (see paragraph 0014). Kuo also teaches that the WCDMA downlink transmission 102 in a multi-path environment involves the cancellation of non-orthogonal channel such as SCH at each finger 302. The channel fade estimate is produced based on the pilot code channel 306 which is based on the timing the particular finger 304. Inherently, the pilot channel codes comprise both primary and secondary pilot channel codes or models since the intra-finger interference cancellation signals generated by the multipliers 324 are also based on primary and secondary SCH patterns generated by SCH pattern generators 322.

### ***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al. as applied to claim 1 in view of Agin et al. (US 6,718,162 B1).



With respect to claim 2, although Kuo does not explicitly show or suggest that the number of fingers  $N$  and the number of the weighted intra-finger interference cancellation signals is  $N-1$ .

Agin clearly teaches that a CDMA receiver comprises  $L$  path demodulators or fingers, each demodulator for estimating a data channel and a pilot channel from a CDMA signal received over one of the  $L$  paths and for generating  $L-1$  cancellation signals each to be used by a specific one of  $L$  subtractor circuits (see col. 3, lines 3-8).

Therefore, it would have been obvious to one of ordinary skill in the art that the weighted intra-finger interference cancellation signals generated by Kuo's fingers are  $N-1$  since the total number of the fingers is  $N$  as taught by Agin in order to reduce the calculation time by the subtractor circuits.

#### ***Allowable Subject Matter***

14. Claims 10, 17 and 19-20 would be allowable if rewritten to overcome the objection(s) set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to show or suggest that a spread spectrum receiver comprises a verification circuit to determine interference levels remaining within the interference-reduced data signals or to identify ones of the pilot signals interfering with receptions of the data signals within ones of the fingers such as to verify the extent to which

undesired pilot channel content associated with other fingers has been removed from a clean decimated data samples of a given finger.

### ***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

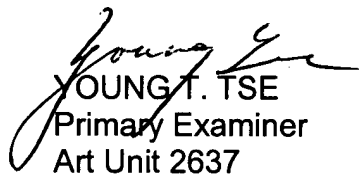
Yellin discloses an apparatus and method for detecting a noisy user signal from a spread spectrum signal and at least one pilot signal and removing an interference effect of the pilot signal from the noisy user signal to create a noisy reduced user signal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOUNG T. TSE whose telephone number is (571) 272-3051. The examiner can normally be reached on Monday and Wednesday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2637

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
YOUNG T. TSE  
Primary Examiner  
Art Unit 2637